

Fiscal Impact Statement

Associated with the

Notice of Intended Action

Antidegradation - Water Quality Standards
(Chapter 61)

Prepared by the

Department of Natural Resources

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Table of Contents

Introduction:	Page 3
Antidegradation Policy Changes:	Page 3
Projected Costs:	Page 4
Assumptions:	Page 6
OIW & ONRW Impacts:	Page 8
Anticipated Benefits:	Page 10
Anticipated Implementation Approach:	Page 10
Table 1 – Summary of Fiscal Impact	Page 5
Table 2 – State Cost	Page 5
Table 3 – Lower Cost Scenario	Page 5
Table 4 – Higher Cost Scenario	Page 6
Table 5 - Outstanding Iowa Waters with known Affected Facilities	Page 9

Fiscal Impact Statement

Introduction: This Fiscal Impact Statement (FIS) will provide the projected costs and potential benefits associated with the proposed rule changes being addressed in the Notice of Intended Action, Antidegradation – Water Quality Standards (Chapter 61). This rulemaking effort is the most recent effort of the triennial review of Iowa's Water Quality Standards that includes the following topics:

- Incorporate by reference the document entitled "Iowa Antidegradation Implementation Procedure," which proposes an approach to be followed in assessing and minimizing degradation of Iowa's surface waters.
- Update antidegradation policy language with a four tier approach, including the establishment of Outstanding National Resource Waters (ONRW) and Outstanding Iowa Waters (OIW) antidegradation use categories

This evaluation will discuss the fiscal impacts for this rulemaking effort. It is important to note that department staff did not evaluate the specific individual impacts or treatment needs for each wastewater treatment facility that may be required to conduct an antidegradation review. Basic assumptions and evaluations were made on the cost to conduct the antidegradation review on all facilities predicted to be affected. The specific individual impacts and needs resulting from the antidegradation review will be best evaluated by the facility's staff or retained consultant. Innovative or unique treatment methods may be available to some facilities thereby reducing specific costs in this regard.

The number of facilities expected to be impacted is an approximation based on the information available from the NPDES Section and Wastewater Construction Section of the Water Quality Bureau.

Antidegradation Policy Changes: The antidegradation rule is one of three required regulatory elements of the WQS. The other two elements include beneficial uses, and water quality criteria (narrative and numeric). All of these review elements must be administered as a whole. All surface waters of the state are subject to antidegradation provisions. The main purpose of the antidegradation policy and implementation procedures is to protect existing uses of surface waters and to specify how the department will determine, on a case-by-case basis, whether and to what extent existing water quality may be lowered in a surface water.

The Iowa Department of Natural Resources is required by 40 CFR §131.12(a) to develop and adopt a statewide antidegradation policy and to identify procedures for implementing that policy. There has been an antidegradation policy in the WQS, but it was absent formal implementation procedures which limited the policy's usefulness. The proposed implementation procedures include identifying the antidegradation review levels (i.e., the "tiers") that apply to a surface water; determining existing water quality; assessing and determining water quality degradation; identifying and assessing less-degrading or non-degrading alternatives; determining the importance of economic or social development to justify degradation of waters; and establishing intergovernmental coordination and public participation processes.

The antidegradation policy and implementation procedures are intended to provide guidance to persons who are responsible for the regulated activities that may degrade water quality in Iowa.

Regulated activities include any activity that requires a CWA permit or a water quality certification pursuant to federal law.

This effort will also establish the Outstanding National Resource Waters (ONRW) and Outstanding Iowa Waters (OIW) antidegradation use categories. These categories will provide an increased level of protection where degradation is prohibited except in limited circumstances. The implementation procedures detail how the public can nominate a surface water to be afforded these levels of protection to the department.

A. Projected Costs: Antidegradation reviews are required when proposed new or expanded discharges will degrade water quality. In addition to reviewing the necessity for a discharge and the social and economic importance of the discharging activity, the department and applicants must ensure that proposed discharges fully protect beneficial uses, and achieve the highest statutory and regulatory requirements (such as application of appropriate federal effluent limitation guidelines for certain industries, secondary treatment standards for domestic wastewater and appropriate water quality based effluent limitations, where appropriate).

An applicant proposing any new or expanded discharge that would degrade water quality is required to prepare an evaluation of alternatives to the proposed discharge. The purpose of this evaluation is to determine whether or not the proposed discharge is *“necessary,” that is, no reasonable alternative(s) exist to prevent degradation.* These alternatives are compared (in terms of practicability, economic efficiency and affordability) to the controls required to protect existing uses and to achieve the highest statutory and regulatory requirements.

Following the analysis of pollution control alternatives, the alternative that is the most practicable, economically efficient, and affordable should be considered the preferred pollution control alternative. If this alternative results in degradation, the applicant must then document the social and economic importance (SEI) of the discharge. Therefore, costs can be incurred in two ways: 1) while performing an antidegradation review and 2) when, as a result of the review, the industry or municipality is required to provide wastewater treatment at a greater level and expense than what would have been chosen prior to this rule becoming effective.

As a result, the cost of implementing these provisions will be borne by applicants of any new or expanded discharge that would degrade water quality and may then be passed on to the users of wastewater systems through sewer fees or rates. It should also be noted that those businesses discharging under a municipal pre-treatment program could indirectly incur costs should the municipal discharge be subject to an antidegradation review. The costs would be incurred if the business was required to upgrade their treatment system in order to meet new discharge requirements at the receiving municipal plant.

While most of the work and costs associated with implementing the revised policy and new implementation procedure will be borne by applicants for new and expanding discharges, the department will be required to expend more time on the review of the applications and facility plans. This can take the form of pre-application/facility plan conferences, alternatives analyses review, and socio-economic analyses review. In general, the revised policy and new implementation procedures apply only to new and expanded discharges which results in a range of approximately 104 to 164 facilities per year.

The department has little experience in performing evaluations regarding the social or economic conditions within a community and performing this work will require training or assistance from other agencies. Other agencies may be contacted occasionally for information on population trends,

demographics, tax data, employment data, etc. Potential sources for this information may be city and county officials, state agencies (e.g. Department of Economic Development), state business organizations (e.g. Chamber of Commerce), and federal agencies (e.g. Census Bureau)

Table 1 – Summary of Fiscal Impact

Overall	Range of Annual Costs (Lower Cost – Higher Cost)
<i>Estimated of annual state/department cost</i>	\$75,363.23 - \$115,978.14 (for FTE)
<i>Estimated Public and Private Annual Cost</i>	
-Municipal Construction Projects	(\$181,500 – \$1,025,600)
-Industrial Construction Projects	(\$41,125 – \$320,000)
-New and Expanded Treatment Agreements	(\$123,750 – \$641,000)
-New Discharges that do not require a Construction Permit	(\$82,500 – \$641,000)
Estimated Public and Private Aggregate Cost	\$428,875 – \$2,628,100

Table 2 - State Cost

State Cost	Estimated Cost
Department of Natural Resources	\$75,363.23 - \$115,978.14 annually for a Senior Engineer FTE or work load equivalent to a Senior Engineer FTE – includes fringe costs

Table 3 – Lower Cost Scenario

Lower Cost Scenario	Estimated Cost
<i>Part 1: Analysis of No Discharge</i>	
Personal Service Cost – Engineering Consulting Firm	(\$100 per hour * 16 hours = \$1,600)
Total	\$1,600
<i>Part 2: Analysis of Minimally Degrading Alternatives</i>	
Personal Service Cost – Engineering Consulting Firm	(\$100 per hour * 16 hours = \$1,600)
Total	\$1,600
<i>Part 3: Documentation of Socio-Economic Importance</i>	
Personal Service Cost – Engineering Consulting Firm	(\$100 per hour * 8 hours = \$800)
Total	\$800
<i>Part 4: Public Notice and Participation</i>	
Personal Service Cost – Engineering Consulting Firm	(\$100 per hour * 1 hour = \$100)
Public Notice Cost	\$25
Total	\$125
Total Estimated Costs Per Facility	\$4,125
<i>Estimated Annual Cost (104 projects annually)</i>	
-Municipal projects	(\$4,125 * 44 = \$181,500)
-Industrial Construction Projects	(\$4,125 * 10 = \$41,125)
-New and Expanded Treatment Agreements	(\$4,125 * 30 = \$123,750)

-New discharges that do not require a construction permit	(\$4,125 * 20 = \$82,500)
Estimated Aggregate Cost for lower cost scenario	\$428,875

Table 4 – Higher Cost Scenario

Higher Cost Scenario	Estimated Cost
<i>Part 1: Analysis of No Discharge</i>	
Personal Service Cost – Engineering Consulting Firm	(\$100 per hour * 40 hours = \$4,000)
Total	\$4,000
<i>Part 2: Analysis of Minimally Degrading Alternatives</i>	
Personal Service Cost – Engineering Consulting Firm	(\$100 per hour * 40 hours = \$4,000)
Total	\$4,000
<i>Part 3: Documentation of Socio-Economic Importance</i>	
Personal Service Cost – Engineering Consulting Firm	(\$100 per hour * 40 hours = \$4,000)
Total	\$4,000
<i>Part 4: Public Notice and Participation with Response</i>	
Personal Service Cost – Engineering Consulting Firm	(\$100 per hour * 40 hours = \$4,000)
Public Notice Cost	\$25
Total	\$4,025
Total Estimated Costs Per Facility	\$16,025
<i>Estimated Annual Cost (164 projects annually)</i>	
-Municipal projects	(\$16,025 * 64 = \$1,025,600)
-Industrial Construction Projects	(\$16,025 * 20 = \$320,500)
-New and Expanded Treatment Agreements	(\$16,025 * 40 = \$641,000)
-New discharges that do not require a construction permit	(\$16,025 * 40 = \$641,000)
Estimated Aggregate Cost for Higher Cost Scenario	\$2,628,100

B. Assumptions: The antidegradation review consists of an alternatives analysis examining non-degrading and less degrading alternatives for wastewater treatment, socio-economic importance analysis, and a public notice/participation process. The components for review are the same whether the regulated facility is private or public/municipal; therefore, the same assumptions are used to estimate costs for both public and private facilities.

The duration of the proposed rule is indefinite and it is assumed that each subsequent year will be consistent with the assumptions used to calculate the annual costs identified in this fiscal impact statement.

Costs for the public entities have been determined from research with consulting engineers, department engineers, and other state's cost estimates.

Existing facilities that are expanding the size of their treatment plants or planning to receive additional waste from industrial contributors outside of their design capacity (e.g., a new treatment agreement for a metal finisher to a municipal wastewater treatment plant) will be required to perform an antidegradation review. New facilities that require construction permits such as a rest area or mobile home park and new facilities that DO NOT require construction permits such as cooling water discharges will be required to perform an antidegradation review.

Cost will depend on the complexity of the situation. Factors including how many different types of pollutants are in the wastewater, the existing quality of the stream receiving the discharge, and the size and type of the treatment system. The higher cost scenario represents the probable costs associated with performing an antidegradation review on the largest most complex systems and assumes heavy public involvement. The low cost scenario is associated with the least complex. The range of costs considers size, complexity, public interests, and range of ease. For example, an alternatives analysis for a new cooling water discharge may be simpler since alternatives may be limited and have less potential for controversy where a large complex discharge may explore more alternatives and may be more controversial as result of the size of their discharge. The cost estimates are intended to include both ends of the spectrum. Some situations may not require detailed analyses and result in less cost while others will require much more analysis and public involvement and result in higher costs. At this time, there is no way to accurately determine which projects will or will not require more analysis and which projects may or may not be controversial.

Of the scenarios described in the tables above, the department estimates the following annual occurrence ranges (Low – High) that may require an antidegradation review:

- 44 – 64 New or Expanded Discharges (excluding unsewered communities and disinfection-only projects).
- 10 – 20 New Industrial Construction projects
- 30 – 40 New or expanded industrial contributors to municipal wastewater treatment plants
- 20 – 40 New discharges that do not require a construction permit
- **104 – 164 estimated overall annual range for regulated facilities needing an antidegradation review.**

Because certain costs imposed on the permit applicant cannot be completely quantified at this time, this fiscal analysis does not fully delineate these costs. These costs include, but are not limited to those associated with implementing additional technology beyond what is currently contemplated by existing rules and indirect costs related to inflation and loss of revenues caused by potential delays in permit issuance. The additional technology beyond what is currently contemplated by existing rules may be required if the alternative is practicable, economically efficient and affordable. This can result in higher costs for a facility in addition to the cost of performing the antidegradation review if the alternative is more expensive than the base pollution control option to meet existing rules. It's not possible to determine how often this may occur in terms of providing an accurate fiscal impact estimate.

Every antidegradation review performed by an affected facility will require the department to conduct its own review of the analysis submitted. The time needed for review will vary based on the complexity and potential controversy associated with the project. The department will attempt to roll the new antidegradation review process into staff's current workloads. However, with over 100

reviews needed annually and having approximately 255 workdays per year (1 review every 2.55 days at a minimum) it is estimated that at least one new position will be needed to effectively implement this new rule. For state cost, complex technical review of an antidegradation alternatives analysis will result in the workload equivalent for an Environmental Engineer Senior with expertise in water quality analysis and engineering economics in the Wastewater Construction Section of the Water Quality Bureau.

C. OIW & ONRW Impacts. The application of Outstanding National Resource Waters (ONRW) and Outstanding Iowa Waters (OIW) antidegradation categories may impose economic limitations for a given watershed. These two categories provide a very high level of protection by prohibiting degradation in all but very limited circumstances. This level of protection will limit the options of existing municipal and industrial facilities to expand or grow and for new facilities to locate in that area depending on the pollutants of concern in their wastewater discharge and the distance from the OIW or ONRW water.

No new discharges/degradation would be allowed, unless, in the case of the OIW category, the discharge/degradation from permanent new or expanded sources serve to maintain or enhance the value, quality, or use of the OIW. New industries (e.g. ethanol plants), on-site systems, and, quarries would be required to treat their wastewater to a high level so that their discharge would not increase the amount of pollutants already in the stream. They could also choose a non-degrading option, such as land application or piping the discharge to another watershed. All of these options can be technically infeasible and/or cost prohibitive depending on specific circumstances).

Any existing permitted discharger will not be allowed to add any additional pollution to the stream. This means municipal wastewater treatment plants like the Cities of Waukon or West Union (see table 5 below of affected facilities that currently discharge to the proposed OIW) will have limited options available to choose from when expanding their wastewater treatment plants becomes necessary. All these NE Iowa communities listed are growing, except for the City of Orchard, and may need to expand their treatment systems in the future to accommodate for this future growth. The additional flow/loading that may result from the wastewater treatment plant expansion will need to be land applied or piped to a different watershed or treated to a higher extent so that no additional pollution is added to the stream. This can be difficult in Karst topography areas due to inadequate amounts of soil and challenging topography. In general, these are more expensive and sometimes cost prohibitive options.

Table 5 – Outstanding Iowa Waters with known Affected Facilities

OIW Waterbody	Facility Name
Bohemian Creek	Protivin, City of
Canoe Creek	North Winneshiek School
Fenchel Creek (aka Richmond Springs)	Strawberry Point, City of (South)
Hickory Creek	Luana, City of
Maquoketa River	Camp EWALU
	Associated Milk Producers, Inc.
	Strawberry Point, City of (South)
Otter Creek	West Union, City of
Paint Creek	Foremost Farms USA
	Waukon, City of
	Waterville, City of
Spring Branch	DNR Manchester Trout Hatchery
Spring Creek	Orchard, City of
Unnamed Creek (aka Trout Run)	DNR Decorah State Hatchery
Village Creek	Makee Manor Care Facility

To highlight these costs, the department performed a rough estimate between an expansion of a controlled discharge lagoon wastewater treatment facility for surface water discharge versus a land application system (i.e., a no discharge, non-degrading alternative). The cost increases were identified to be significant, increasing the cost of a traditional wastewater treatment plant expansion by factors of 2.4 to 2.9 depending on the size of expansion. In large part, this is because more storage is generally required for land application than is required for a controlled discharge. The no discharge alternative assumes no discharge of the increased loading only (i.e. the existing lagoon facility would still discharge but would be required to land apply any flows over the existing design capacity).

The extent to which the facilities noted in Table 5 will be affected is unknown. However, some facilities are more likely to experience implementation issues than others. For example, the majority of the municipalities listed will likely need to expand their operations to handle future population growth. Others like the DNR Fish Hatcheries, North Winneshiek School, and Makee Manor Care Facility are likely more “static” in their operations and may not need to expand or grow their operations and therefore will not need to expand their wastewater treatment plant infrastructure. In addition, it is important to note that there are several additional waters being proposed in this rule making that do not have any existing NPDES regulated facilities, but could make it difficult, if not prevent, any new discharger (e.g. industries) from locating in these watersheds.

A complicating factor in how facilities discharge in OIW or ONRW watersheds is whether they discharge directly to the OIW or ONRW segment, or indirectly via a stream tributary network that eventually reaches the OIW or ONRW segment. Any new or expanded discharge will be examined on a pollutant-by-pollutant basis. Some pollutants can decay naturally and may dissipate before reaching an OIW or ONRW segment. One example of this situation is a wastewater treatment plant that discharges indirectly to Otter Creek through 20 miles of unnamed stream tributaries. The unnamed tributaries are not OIW waters and therefore degradation can occur after a Tier 2 antidegradation review, but degradation is prohibited downstream in the OIW or ONRW segment. Pollutants such as ammonia-nitrogen, chlorine, or bacteria naturally decay or dissipate over time as

they travel downstream. Each pollutant and discharge scenario can be different and will need to be closely examined to determine if degradation in the OIW water may actually occur.

New discharging on-site wastewater disposal systems would be prohibited from degrading OIW and ONRW waters. Non-discharging on-site wastewater disposal systems, such as a mound system, would qualify as a non-degrading option. These systems are, in general, about 33% more expensive than their discharging counterparts. The typical discharging on-site systems costs around \$8,000 while non-discharging systems can cost in the range of \$10,000 to \$12,000 depending on local variables (e.g. cost of materials, topography).

New quarry operations may be impacted as a result of an OIW or ONRW category. These operations generally require dewatering of some of the pits created during the quarrying process. Dewatering operations may likely be prohibited in OIW and ONRW waters if degradation were reasonably expected to occur. There are quarry operations that do not require dewatering. However, if this option is not available it will require the raw materials, like crushed limestone rock, to be quarried outside the watershed and hauled in for projects. This may increase the cost of projects within these watersheds due to increased hauling costs of importing the raw material from quarries outside the watershed.

Waters categorized as OIW and ONRW will make it difficult, if not prevent, new industries from locating in the communities or elsewhere in these watersheds. As a result, any attempt at broadly estimating a statewide cost for all potentially affected entities that may be directly or indirectly affected by the application of an OIW or ONRW category will present a range in costs so wide as to be effectively meaningless. The overall costs statewide cannot be estimated with any degree of accuracy due to the absence of readily available information to thoroughly research the multitude of variables that will 1) affect whether or not treatment improvements will be technically possible, and if yes, what will happen if they're cost prohibitive, and 2) what industries may choose not to locate in the watershed or in Iowa due to an OIW or ONRW categorization.

D. Anticipated Benefits. The anticipated benefits from revised antidegradation policy and new implementation procedures are associated with the potential improvements to instream protections for aquatic and semiaquatic life, wildlife and livestock watering needs, and aesthetic conditions due to increased attention toward researching treatment alternatives. The proposed implementation procedures require a systematic review of various options for treating a proposed discharge. The procedure will encourage dischargers to select a plan that achieves the most practicable, cost-efficient and affordable treatment.

There may be indirect marketing benefits associated with waters categorized Outstanding National Resource Waters (ONRW) or Outstanding Iowa Waters (OIW). These benefits may be realized by increased tourism to these waters and other nonuse benefits such as Iowans simply knowing these resources are better protected and preserved for future generations.

None of these potential benefits has a readily identifiable monetary value and thus will not be estimated in this impact statement.

E. Anticipated Implementation Approach: The Department recognizes that the implementation of these proposed rules and rule changes may have significant economic impacts. Historically, compliance with the provisions of the federal Clean Water Act has carried a significant price tag and will continue to be costly as requirements and guidelines are reaffirmed. It is the goal of the Department to implement these proposed rules in a reasonable, practicable, and responsible manner. Thus, the implementation will be linked to the either the reissuance of each facility's

NPDES permit, NPDES permit amendment, or wastewater construction permit. All available NPDES provisions and consideration will be made to allow adequate time for each facility to comply with the adopted rules according to their time constraints, economic abilities, and source of financial aid.